Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
NextNav Petition for Rulemaking, Enabling	)	WT Docket No. 24-240
Next-Generation Terrestrial Positioning,	)	
Navigation, and Timing and 5G: A Plan for	)	
the Lower 900 MHz Band (902-928 MHz)	)	

COMMENTS OF THE EDISON ELECTRIC INSTITUTE

The Edison Electric Institute ("EEI") hereby submits these comments in response to the Wireless Bureau's Public Notice, in the above-referenced proceeding,[1] in opposition to NextNav's petition for rulemaking to reorganize the 902-928 MHz band ("Lower 900 MHz Band") and establish a 5G terrestrial-based positioning, navigation, and timing ("PNT") network ("NextNav Petition"). EEI opposes the NextNav Petition as it would likely cause significant and adverse disruption to the of millions of EEI member's Part 15 devices currently using the 900 MHz band.

I. Introduction & Summary

EEI is the trade association representing U.S. investor-owned electric generation and distribution companies, including all the major regional electric companies. Collectively, EEI's members provide electricity for nearly 250 million Americans, operate in all fifty states and the District of Columbia, and directly and indirectly employ more than seven million people in communities across the U.S. EEI's members are among the nation's largest users of communications services and operate some of the largest private communications networks in the nation. Electric companies are investing in communications networks to help make the electric grid stronger, more reliable, more secure, and more resilient to help transition the nation to cleaner energy resources. Accordingly, EEI and its members have an ongoing interest in ensuring that this nation's electric companies have sufficient communications capabilities to meet their duty to provide safe, reliable, secure, resilient, cost-effective, and cleaner power to the public.

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[1] Wireless Telecommunications Bureau Seeks Comment on Petition for Rulemaking to Expand Wireless Broadband in 900 MHz Band, Public Notice, DA 24-320 (WTB rel. Apr. 2, 2024) ("Public Notice").

EEI supports the goal of increasing spectrum access and emphasizes the need for a sustainable spectrum strategy that recognizes the electric power industry's needs. EEI submits the following comments because the Lower 900 MHz band is essential for various utility applications, prominently including Advanced Metering Infrastructure ("AMI" or "smart meters"), Supervisory Control and Data Acquisition ("SCADA"), and electric protection. These applications are foundational to the electric sector's ability to operate reliably and predictably, as well as to the automatic processes that make up the smart grid.

II. Comments

EEI members rely heavily on Part 15 devices for critical functions such as AMI, SCADA, and electric protection. Interference from NextNav's proposed PNT service could significantly disrupt these operations, leading to data quality issues, operational disruptions, increased costs, and compromised automation. This could negatively impact the reliability and efficiency of utility operations, potentially resulting in disruptions in power delivery and customer services.

A. Adverse impacts to AMI and Smart Meters

Smart meters are one key element in utility smart grid systems.[2] Unlike analog meters, from which it is costly to collect usage data , smart meters record and enable two-way communication between the end-users and the utility on a near real-time basis. A sizable portion of the costs of smart meters are justified through operational benefits such as remote meter reading, faster outage detection and restoration, fewer truck rolls, and remote on/off service switching. There are also significant demand response[3] benefits enabled by smart meters that may support the smart meter investment and achieve overall positive net benefits as well.

By 2026, approximately 142 million smart meters will be installed in the United States.[4] These meters rely on spectrum to enable two-way communication between utilities and customers, improving grid visibility and facilitating time-varying pricing programs. In particular, many electric utilities have deployed smart meters that rely on unlicensed spectrum from the range targeted in NextNav's proposal. Interference from NextNav's proposed PNT service, combined with use of the band for 5G deployment, could jeopardize the accuracy and reliability of smart meter data, leading to:

- **Data Quality Issues:** Inaccurate customer usage data and billing.
- **Operational Disruptions:** Delayed meter reads and customer billing.

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[2] EEI thinks of the Smart Grid as an approach to customize upgrades to the power delivery system with enhanced communications, information and control technologies that improve the reliability, safety, security, resiliency and efficient operation of the power system.

[3] Demand response is a program that encourages customers to change their electricity usage to help balance the supply and demand of electricity on the power grid, thereby improving gid stability and making electricity more affordable.

[4] https://www.eisonfoundation.net/-/media/Files/IEI/publications/IEI_SmartMeterAtAGlance_2024-Update_.pdf

- **Increased Costs:** Potential need for manual meter reads, done by sending personnel to the customer premises.
- **Disrupted Automation:** Interference with automated disconnects and remotely turning on service.

B. Adverse Impacts to SCADA Operations and Electric Protection

Utilities install SCADA equipment at each switching station and substation to monitor and control the function of the grid. Utility SCADA systems also gather real-time data remotely for processing management, and control of grid elements, thereby further enhancing the smart grid. SCADA provides voltage and current measurements at critical grid nodes every two to four seconds. Many utilities utilize SCADA systems to remotely monitor and manage their power and gas networks,[5] with equipment that relies on unlicensed spectrum in the band identified in this Public Notice.

To fulfill their functions, SCADA systems require minimal latency. For example, some utilities require latency levels of less than 100 milliseconds for command and control applications like SCADA. Latency can have differing impacts depending on the SCADA application. Although delays during normal operations may reduce momentary situational awareness and control, delays during a life-critical situation involving high-voltage lines are more deleterious. For example, utilities use spread spectrum radios to collect SCADA data from pole-mounted devices and substations to provide situational awareness to operators in control centers. Loss or lack of this data can impact a utility's ability to respond to electric outages.

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[5] Additionally, these radios are used by utilities that have integrated gas operations, meaning that these radios support gas flow control and generation/emergency action plans. The same issues occur in radios used for storage field methane/fence line monitoring, well monitoring and odorant monitoring.

While traditional SCADA systems are not band-width intensive, the reliability requirements of SCADA are high. Moreover, since SCADA equipment is typically installed across all of a utility's substations, its coverage requirements are coextensive with the utility's footprint. Currently, some electric utility SCADA systems use licensed spectrum exclusively, while others use combinations of licensed and unlicensed spectrum, including utilizing equipment relying on unlicensed spectrum in the band identified in this Public Notice.

Electric utilities further use point-to-point radios in this band for electric protection, whereby a radio is installed at a small generator to provide a signal that the generator needs to disconnect from the grid to prevent power from being fed back to the grid during undesirable situations such as power line maintenance, electrical faults, and similar events. Transporting teleprotection relay signals between substations is a critical application for power utilities. These signals help manage power grid load and protect equipment from severe damage with the consequent high repair costs and perhaps longer outage times.

AMI data is also incorporated into electric utility SCADA systems, which is used to inform utilities of the location of power outages and the completion of restoration efforts. Missing any of this data could result in improper reporting of data, thereby reducing situational awareness and delayed or misdirected restoration by utility workers.

In sum, increased interference in an already crowded band can adversely impact SCADA systems for electric grid operations via:

- **Reduced grid control:** Difficulty restoring power.
- **Increased fire risk:** Inconsistent control and power shutoff.

- **Greater public safety risk:** Lack of grid control during emergencies.
- **Additional costs:** Increased troubleshooting and realignment.

Additionally, many utilities utilize SCADA systems to remotely monitor and manage their gas networks, with equipment that relies on unlicensed spectrum in the band identified in this Public Notice. These radios are used by utilities that have integrated gas operations, meaning that these radios support gas flow control and generation/emergency action plans. These utilities also typically use radios for storage field methane/fence line monitoring, well monitoring and odorant monitoring.

C. The Commission Should Reject the NextNav Petition

It is crucial for the Commission to carefully consider these potential impacts to utility SCADA and AMI systems. These concerns have not been adequately addressed in the Petition, which glosses over the extensive unlicensed use in the band and the complexity and criticality of that use, and it should be rejected.

The Commission must carefully consider the potential impacts of NextNav's proposal on utility SCADA and AMI systems, which the NextNav petition fails to adequately address. While NextNav proposes to work with unlicensed users and conduct technical analyses, it lacks specific details about these efforts. A key requirement of this band is the coexistence of services for licensed users and Part 15 unlicensed devices. Further, there must be no unacceptable interference to Part 15 devices, as demonstrated via field testing.[6] The NextNav petition proposes to eliminate that protection, placing the viability of Part 15 devices at risk. There is insufficient evidence to support the claim that coexistence between NextNav's service and Part 15 devices is achievable. Therefore, the Commission should reject the NextNav Petition.

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[6] *Id*. at 4.

III. CONCLUSION

For the foregoing reasons, the Commission should reject the NextNav Petition to reorganize the Lower 900 MHz Band and establish a 5G terrestrial-based PNT network.

Respectfully submitted,

EDISON ELECTRIC INSTITUTE

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